**[Game Overview]**

*Unbelievable Conflict* is a 2D third person multiplayer shooter game. The core gameplay will be a one-vs-all Deathmatch. Two to four players will be dropped into a map where they will have to try and kill each other. The first person to reach a predetermined number of kills wins the match. The matches will also have the option to be time limited. If the time runs out before any player can reach the necessary kill count, then the player with the highest number of kills wins the match.

Before any gameplay actually starts, the player will be faced with the main menu. In the main menu there will be the usual options of muting the sound, character selection and getting help with the controls, but there will also be some options that will be slightly different from a typical single player game. There will be a choice of hosting a game or joining a game. If the player decides to host the game he or she will be able to select which map to play on, the number of kills to win the match, the time limit for that match, and the number of players. The other choice will be to join a game. The player will have to input the correct IP address of a server that is hosting a game to join. Both host and joining party will have to pick a name for themselves. The match doesn’t begin until the correct number of players have joined the game.

The character selection will offer the player a little bit of customizability. There will be three classes to choose from ranging from fast movement speed but low health/armor to slow movement speed but with high health/armor.

The game will be played with a keyboard and mouse. The mouse is used to control the aiming and firing of the weapon. The keyboard will be used to control the movement of the player, as well as switching weapons, and accessing an in-game menu and statistics.

The visual entities found in the gameplay are:

The Players: 2-4 players that will be killing each other

The Weapons: Three different kinds of weapons: instantaneous projectile (lasers, or bullets), slow projectile (grenade launcher), and melee (sword). The player will be able to switch between them.

Power-ups: affects the individual player (personal shield) or the entire map (gravity inversion)

We believe this game will be interesting because it will be fast-paced, competitive, and have some unique aspects to the game that are generally not found in ordinary shooter games. The maps will have different characteristics such as variable gravity, and power-ups specific to the map.

**[Development Strategy]**

To begin with, we will mostly be starting from scratch. This way our code will be more organized and well developed. However we will be borrowing methods and techniques learned from the previous projects, such as a rudimentary physics implementation, and collision detection. We will begin with the development of the all of the visual entities in the game, and their interactions with each other. Then we will move on to integration of the basic game and networking between the server and clients. This will be our major sticking point in our low-bar goals. Since we do not have much experience with networking games, this is where we will spend a lot of time implementing and debugging. By taking care of the basic implementation of the game, such as graphics, controls, and physics first, it will allow us to spend more time ironing out the problems with networking. In the beginning, the networking aspects will be done by one individual in the sense that the research and small scale test will only need to be done by one person. When the time comes for the networking integration with the rest of the game, the whole team will be working on any research, implementation, and fixing bugs.

Milestone 1: November 25. Controls, physics, collision detection for the game should be implemented. Graphics and sounds should be nearing completion. More features may involving graphics and sounds may still be in the works.

Daniil Martyn will be working on the controls, physics, collision detection and graphics toward milestone 1 because this is similar to his previous project.

Nikolay Arabadzhi will be working on acquiring sound and researching networking and small scale tests.

Milestone 2: This will be the alpha due date, December 2. The graphics, sounds, controls and physics for the game should be done. The networking integration should be started, a very basic game may be able to be played.

Daniil Martyn will finish the graphics, controls, and physics for the game.

Nikolay Arabadzhi will finish the audio aspects of the game and begin integration of networking.

Milestone 3: December 16 showcase. The entire game, is completed and polished. Everything – gameplay, graphics, sounds, networking, physics, and collision detection works as expected.

Both team members will be working on ironing out problems, fixing bugs, and adding final polish to the game.

**[Technical Showpieces]**

Our major technical showpiece will be networking. For a networked game to work we will have to send the information from each player as well as all the projectiles data to each player and then have to process that data. The information processing time cannot take too much time or the game will move on without the new information but has to be accurate to have a fun and fulfilling game. This will be the hardest part of networking as we have to be sure of each players moves before moving on which could cause lag if the methods we create are inefficient. So an option could be to make prediction of where the player will be and correct for it when the correct data really comes. But then it will be difficult for the game to be deterministic as each other computers game could change things slightly if not taken care of could lead to severe problems in a longer game.

Another difficulty might be that this would be the first time either of us has created a networked game which could take some serious thought and research to get right. We have had a networking project with Professor Lang but not to this scale.

**[High Bar]**

* **Modified Physics:** gravity effects will applied separately per individual player and separate from objects. Each player will have his/her own perspective of the map based on their gravity and orientation to the map.
* **Different Game Modes:** Some possible ideas are capture the flag, Juggernaut, Survival, King of the hill and so on.
* **More Guns:** More interesting types of guns like seeking, mine laying, and so on
* **AI**: Having some AI during the matches in case of single player.

**[Low Bar Checklist]**

* **Avatar Movement**: the user’s selected character will be able to move left, right, and jump up to platforms. The avatar will not be able to clip/pass through platforms and any objects. The avatar will not be able to go beyond the limits of the map.
* **Avatar Shooting:** the avatar will be able to use three different weapons. Each weapon will be able to be aimed with the mouse.
* **Environment:** the map will be bigger than the screen size. To reach the unseen portions of the map, the screen will be able to move with the character.
* **Statistics:** the game will keep track of the kills and deaths of each player in the game. The statistics will able to be accessed during game play, and shown at the end of a match.
* **Network:** the game will have multiplayer capability through the use of LAN. Two to four players will be able to play on the same server by connecting from separate computers.
* **Power-Ups:** there will be map-specific power-ups that produce temporary effects on the individual player, or the entire map.
* **Different Classes**: These should be the before mentioned play styles each player will be able to choose: Speed, Armor, and Medium.